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How Spotify’s intellectual asset mapping framework can drive value for knowledge companies

By **Per Wendin** and **Ellenor Hayes**

- **Intellectual assets now account for the vast majority of value in knowledge-based organisations – yet they are nearly always underutilised and under-protected.**
- **Identifying and examining such assets can enhance a business’s understanding of the intangible resources that drive value creation.**
- **The practice has proved particularly relevant for trade secrets, which can be a significant challenge at any transparent and fast-moving company.**

Intellectual asset (IA) mapping is the process of analysing knowledge-based organisations (or particular projects) by reference to the discrete intellectual components, or assets, that underpin them. Doing so provides a useful starting point for capturing, managing, protecting and leveraging an organisation’s or project’s core resource base.

The theory and practice of IA mapping is a core tenet of the **Center for Intellectual Property**(CiP), an interdisciplinary development centre focused on knowledge-based business. The premise is that by identifying and examining the underlying IAs, rather than focusing purely on IP rights or other measures that can be used to control them, a better understanding can be gained of the intangible resources that form the basis of – and drive – value creation. This process can be used by any business in any industry, but it is particularly useful for companies such as Spotify, where the core resource base is intangible.

As a CiP industry partner, Spotify has had the opportunity to apply so-called ‘CiP thinking’ to its IA management and IP strategies. This has been driven, in large part, by engaging with students undertaking a **master’s in intellectual capital management** at Chalmers via summer and master thesis projects.

The application of IA mapping to Spotify is the result of such projects, originally led by **Ellenor Hayes**, which resulted in the development of the Spotify IA mapping framework in 2019. In 2021 Spotify engaged two other CiP students, **Marta Sadriu** and **Michelle Fransson**, who have a specific focus on the data assets category. The company also plans to engage future CiP students to look deeper into other categories.

The framework is a helpful tool that allows Spotify employees (particularly those working in R&D) to view their work through a holistic IA lens. For the IP team, it is a means of communicating the full spectrum of Spotify’s IAs to internal stakeholders in order to advise and empower the Spotify R&D community to take a considered approach to securing control positions (IP based or otherwise) around the IAs that support the business’s strategic aims.

IAs versus company value

As Ocean Tomo first pointed out in 2010 (and has since updated with **new data**), the tangible asset value (eg, machinery, factories and buildings) of S&P 500 companies has fallen dramatically, compared to IAs (eg, brands, technology and relationships). The latest findings show a drop from 83% in 1975 to just 10% in 2020. (In the S&P Europe 350, the corresponding number for tangible assets is 25%.)

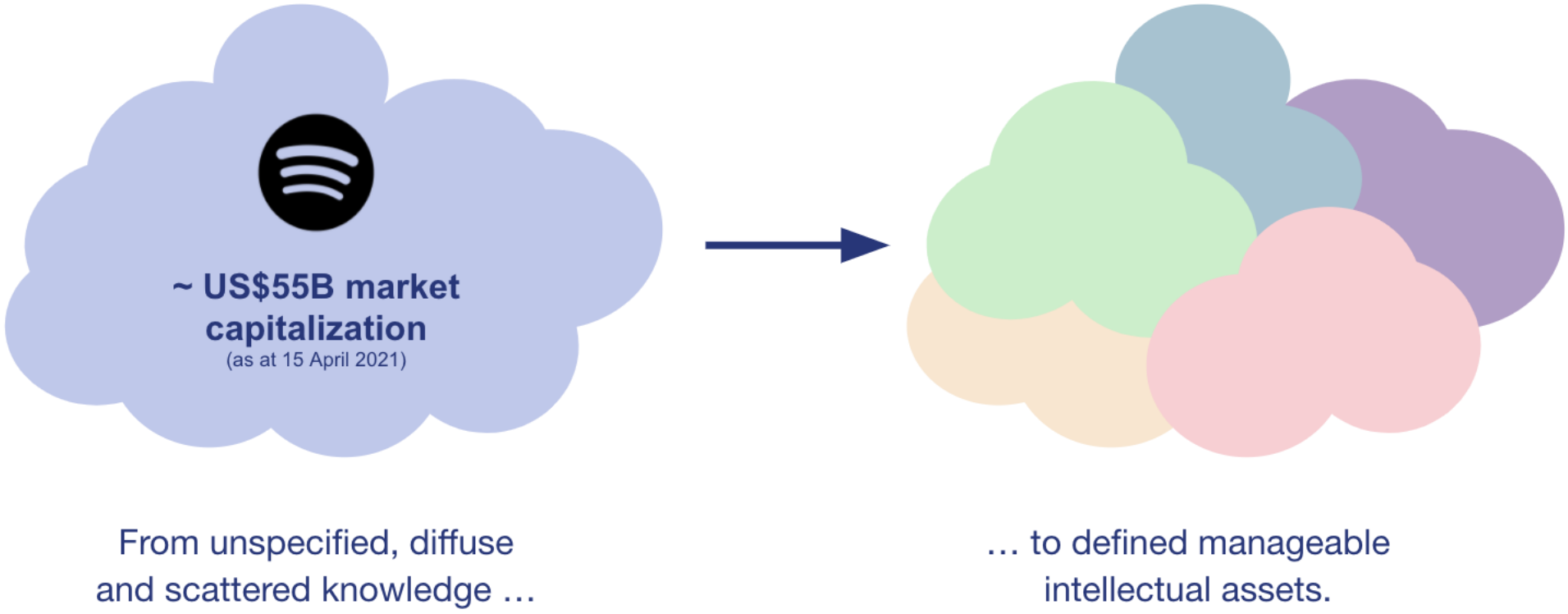
Given that IAs now account for the vast majority of value (especially in knowledge companies), it is becoming increasingly apparent that traditional accounting principles are failing to capture their value. The so-called ‘book value’ (ie, the measure of a company’s assets) tends to comprise tangible assets only. The table below shows the ratio between market value and book value and the IA proportion for a selection of companies in different industries. It reveals that companies which rely heavily on natural resources and manufacturing (eg, oil, forest and pulp) have a market-to-book value below two and depend primarily on tangible assets, whereas a company such as Spotify – the world leader in audio streaming media mostly via an outsourced hosted platform – has a market-to-book value of 20, with IAs making up 95% of the value.

Firm	Industry	Market-to-book value*	IA (%)
Spotify	Streaming media	20.10	95%
AstraZeneca	Pharmaceutical	8.5	88%
SCA	Forest, pulp	1.45	31%
BP	Energy	1.189	16%

*as at 29 March 2021

In view of the importance of IAs in knowledge companies and the limited utility of traditional approaches to accounting for them, it is crucial that companies find a new way to define and control IAs – especially where these are the main, sometimes only, asset.

Figure 1: Visualisation of how IA mapping can be used to bring the IAs of knowledge companies into focus



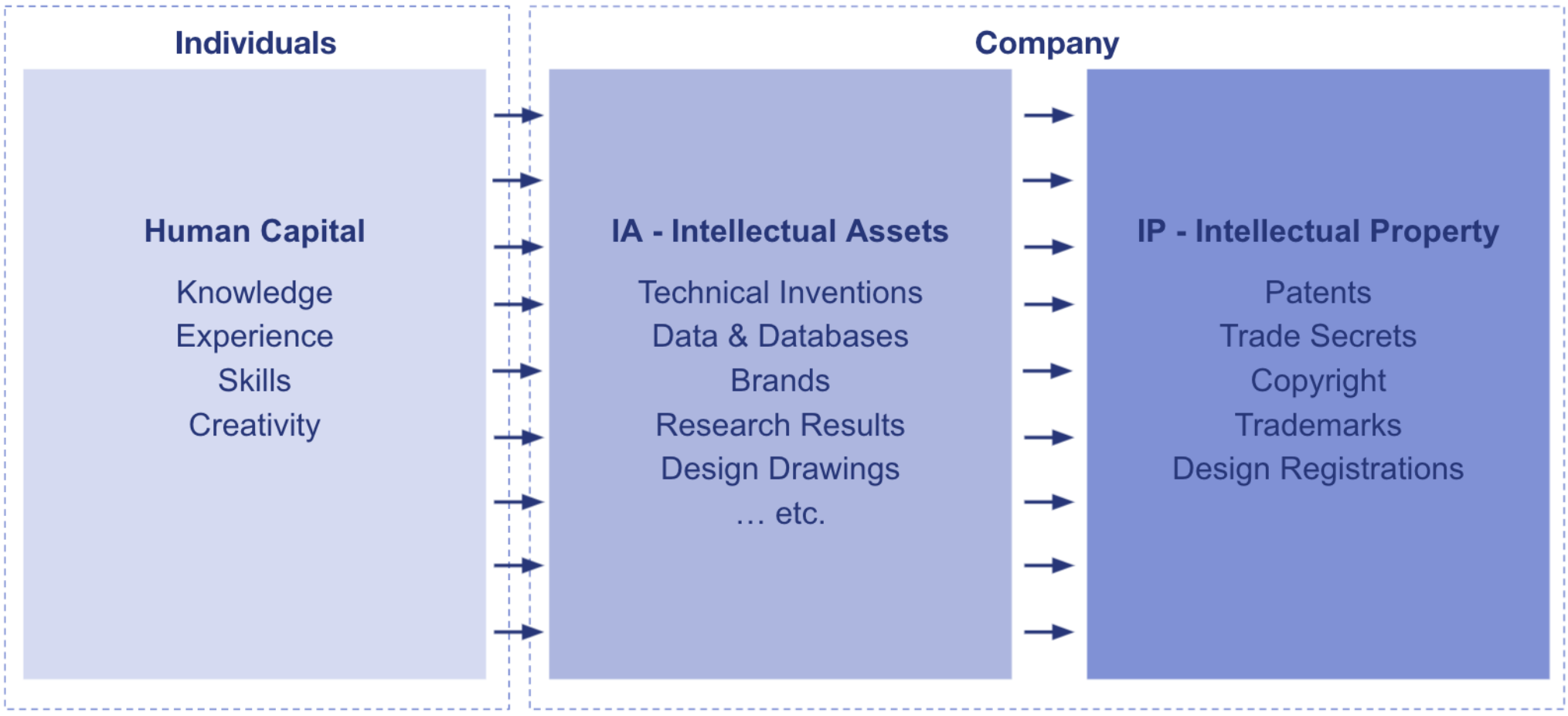
*Source: adapted from CiP materials developed by**Bowman Heiden**and **Ulf Petrusson***

IA ownership

The first step is to understand how IAs are created in the context of a knowledge company. Everything starts with the individual, the human capital. Knowledge companies employ people due to their knowledge, creativity and skills in anticipation that this will lead to the development of excellent products and services.

However, such qualities are inherent to the individual and as soon as they leave, the company can no longer benefit from their knowledge and experience. It is therefore important that those skills are translated into IAs and assigned to the company, normally through an employment agreement. Once they have been assigned and understood, they should also be controlled as intellectual property and sometimes registered as IP rights.

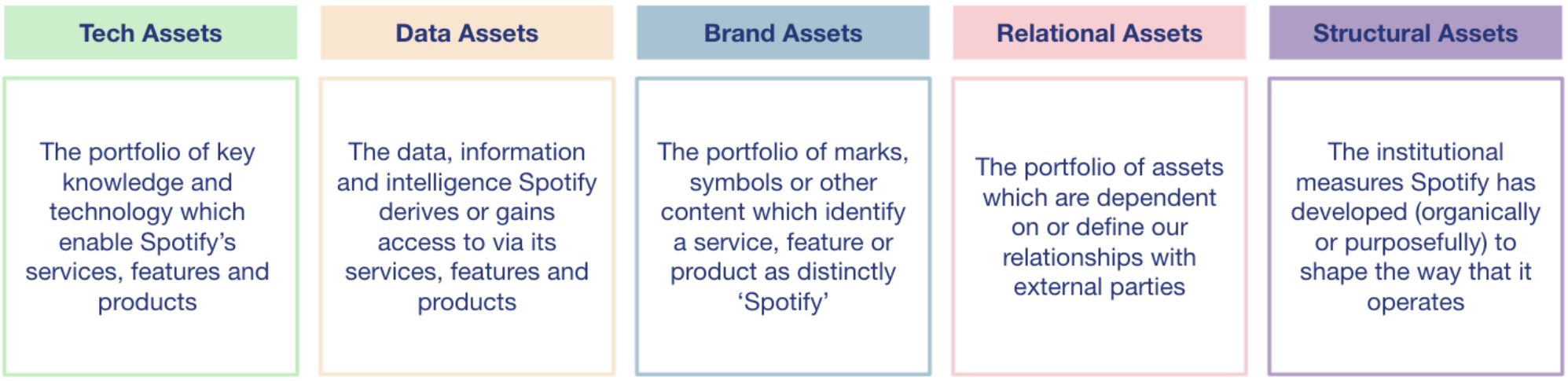
Figure 2: Visualisation of the transformation of individual human capital into IAs and intellectual property, owned and controlled by the individual employee



The Spotify IA mapping framework

Spotify has created an IA mapping framework to decipher and understand the value drivers within the company and how these can be controlled. The following IA categories have proved particularly useful for mapping the output of our investments in technology R&D.

Figure 3: The Spotify IA mapping framework



The Spotify IA mapping framework is used to identify the different types of intangibles that exist and underpin the value proposition of the business. Understanding the full portfolio of IAs by reference to this framework is an important first step in identifying what is truly valuable and worth protecting as intellectual property.

The five categories are defined as follows:

- Tech assets encompass the portfolio of key knowledge and technology that enable Spotify's services, features and products (eg, technical solutions, algorithms, machine-learning models, know-how, secret or confidential information, and research results). It will come as no surprise that tech assets are a fundamental pillar to a tech-driven company such as Spotify.
- Data assets comprise the data, information and intelligence that Spotify derives or gains access to via its services, features and products (eg, raw data, metadata, data sets (unrefined and refined), data catalogues and data-derived insights and predictions). This category is becoming more important every day. The data is fundamental to machine-learning models and drives aspects such as personalisation – a key selling point for Spotify.
- Brand assets encompass the portfolio of marks, symbols and other indicators that make a service, feature or product distinctly Spotify (eg, distinctive marks, descriptive concepts, unique design and aesthetic features, and original content). Aside from the obvious examples of Spotify's house marks, this also includes valuable secondary brands in the form of playlist names (eg, **RapCaviar**).
- Relational assets cover the assets that depend on or define relationships with external parties (eg, customer relationships and lists or databases, partner relationships and alliances, contracts (licences and agreements), distribution channels and third-party content, including the full catalogue of music content, as well as both exclusive and non-exclusive podcast content hosted on the platform). In particular, the content of the agreements to license music and podcasts is a key relational asset, which drives the **company's profitability**.
- Structural assets refer to the institutional measures that Spotify has developed (organically or intentionally) to shape the way that the company operates (eg, internal organisational structures, systems, policies, procedures, business plans and strategies). A now famous example of a structural asset is Spotify's unique **model** for scaling agile development processes.

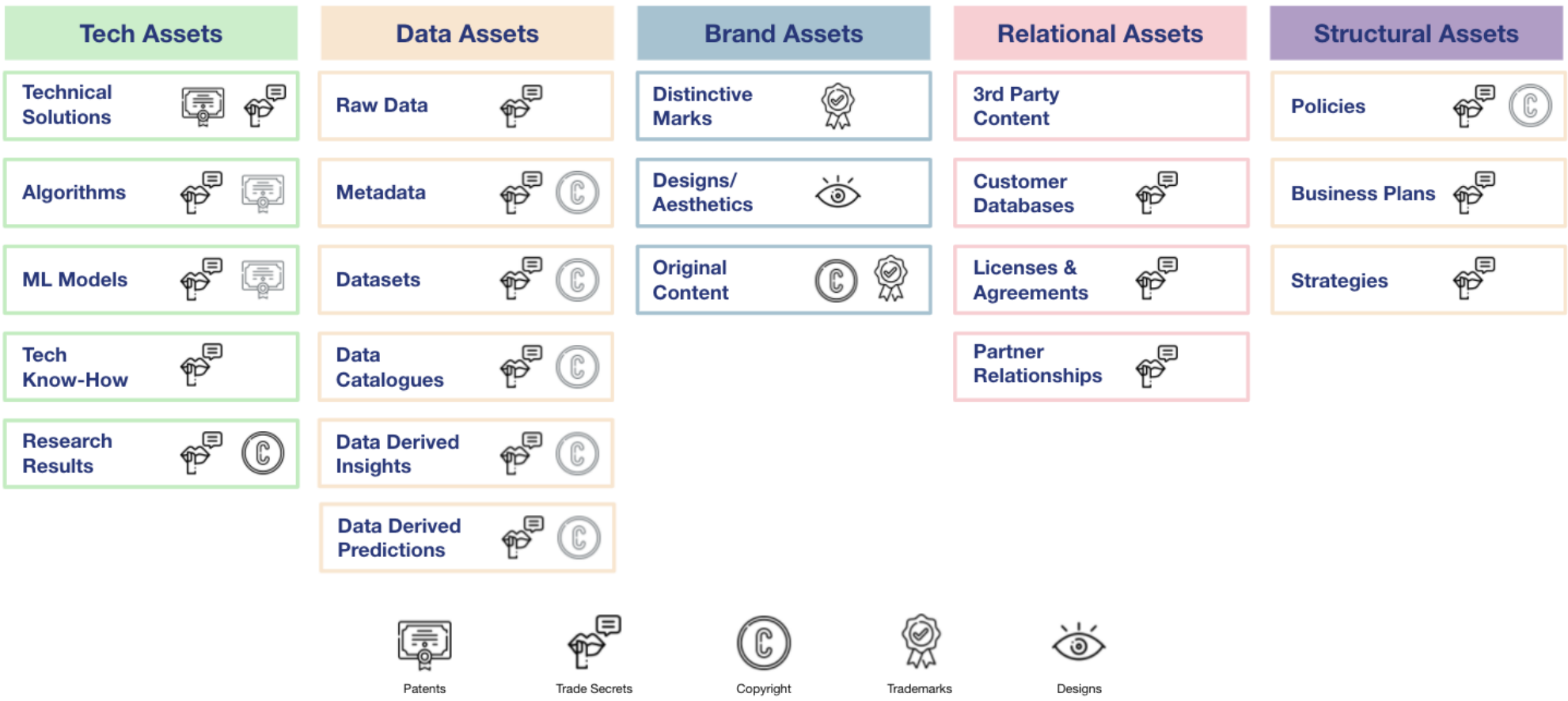
Applying IP strategy to the IA mapping framework

The IA mapping process addresses the layer below any available IP rights and thereby enables strategic decision making about how to protect IAs in a way that is compatible with – and, ideally, maximises – the organisation's ability to utilise and create business value from them.

For example, if a technical solution (ie, the underlying IA) fulfils certain legally defined criteria, it may be registered and protected as a patent. However, IP rights are by no means the only way of controlling valuable intangible assets. While the technical solution may indeed fill the legally defined criteria to be registered as a patent, patenting is not necessarily the most effective means of control. For example, after assessing that third-party use could not be easily detected (eg, in certain under-the-hood technologies) or the patented technology could be easily designed around, the organisation may be wiser to maintain the same technical solution as a trade secret.

In view of this, potential IP protection modes can be ascribed to the IAs within each category of the Spotify IA mapping framework.

Figure 4: How different IP rights can be used to protect a selection of intangible assets in each category



NB: A muted colour tone indicates that while protection may be technically possible, it may be practically difficult or undesirable (eg, mathematical models cannot be patented per se*) or enforce (eg, copyright cannot be relied upon to protect the actual findings presented by research results, only the actual written expression of the results).*

The figure shows that trade secrets are a particularly important tool for protecting many of the IAs that drive Spotify's business value. Indeed, patents are the preferred means of protection only occasionally, for technical solutions (and certain technical implementations of algorithms or machine-learning models). Even then, trade secrets might be a better option, depending on the possibility of discovering third-party use, obtaining reasonably broad patent protection and even fulfilling the requirements for patentability in different countries.

For example, in a 2015 EPO Board of Appeal decision (T0306/10, applicant Yahoo!), the EPO stated that "the selection of an item, for example a song, for recommendation to a user does not qualify as a technical purpose"and is therefore not patentable.This means that media recommendations – a key selling point for many streaming companies – are often excluded from patentability in Europe, but not, for instance, in the United States. In other sectors (eg, pharmaceutical and hardware), where detecting infringement is easier and patentability requirements are more straightforward, patents may be preferred over trade secrets.

The fact that trade secrets play such an important role is a challenge for a transparent, fast-moving company such as Spotify, which has thrived thanks to its culture of openness and sharing information. There is therefore an ongoing discussion about how much the company should share with third parties and how accessible information should be internally.

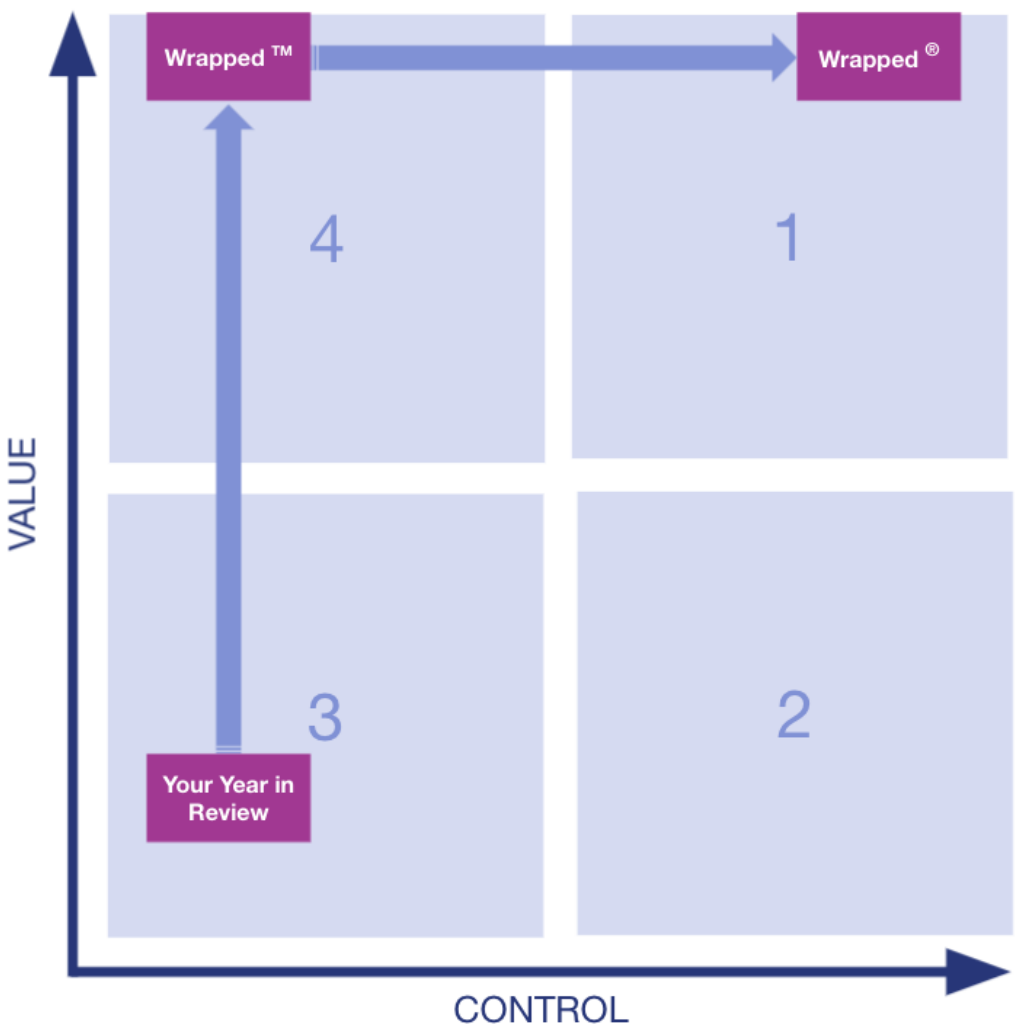
Practical example

So how do we make use of the Spotify IA mapping framework in practice? One way is by working with specific R&D projects or teams to define the key IAs within each of the five categories and then plotting these according to control and value on the matrix (also adapted from CiP) below. This is a dialogue between the IP teams and engineering and business leads within R&D.

If we agree that an asset has a high value but is not sufficiently controlled (ie, it exists in quadrant four), we recommend IP strategies to increase control (ie, moving it across to quadrant one). It may also be possible for IP strategy to inform the decision to invest in increasing both value and control over an intangible asset.

Although it predates the Spotify IA mapping framework, an illustrative historical example of the process by which a valuable brand asset can be strategically developed then controlled using intellectual property is plotted in Figure 5.

Figure 5: Spotify Wrapped brand asset plotted on to the control x value matrix



1. **High Value, High Control**
   - IAs which are likely key to value proposition
   - Focus on governance and control
2. **Low Value, High Control**
   - Explore ways of increasing value – Further development
   - Consider cutting costs associated with control
   - Consider alternate monetization options – More valuable for others?
3. **Low Value, Low Control**
   - Explore ways of increasing value and control
   - Deprioritize?
4. **High Value, Low Control**
   - Explore ways to strengthen control
   - Manage carefully

*Source: adapted from CiP materials developed by**Bowman Heiden**and **Ulf Petrusson***

Today, Spotify's annual Wrapped campaign is one of the most identifiable and hotly anticipated events on the cultural calendar. However, when it was first released, the Spotify data stories that summarised users' annual listening habits were simply called "Your Year in Review" – a descriptive phrase with little value to the company as Spotify could neither own nor control it. By rebranding the experience as Wrapped, Spotify elevated the value of the asset by carving out a unique and distinctive brand. Finally, by registering Wrapped as a trademark in key markets, it cemented a strong and sustainable IP-based control position around the asset.

Why use the framework?

By viewing IAs through the framework of these five discrete categories, Spotify can adopt a structured and systematic approach to identifying and securing control of them and, more importantly, utilising and creating business value from them.

More specifically, by adopting these guidelines and integrating IA thinking into Spotify's R&D processes, the company is better positioned to:

- systematically protect IAs to ensure that it retains its proprietary rights to these assets as appropriate (eg, file patent applications before publication, enter into clear and favourable agreements governing IP ownership with collaboration partners, or select product names that are both available and registrable as trademarks in key markets);
- optimise the value of assets to the organisation by:
  - taking a strategic decision about when to protect an asset as a trade secret or prevent competitors from patenting by publishing, rather than simply patenting by default and letting everything else languish without any strategic action; and/or
  - finding application areas for one IA across multiple parts of the business (ideally using the unique position and broad insight of the IP team to perform a kind of intellectual cross-pollination); and
- focus its R&D effortsto create IAs that are most likely to increase profitability or achieve other important business objectives (eg, securing freedom to operate in otherwise competitive but strategically important markets or increasing the company's competitive edge in strategic markets or sectors).

On the flipside, if Spotify fails to identify and strategically manage its IAs, it risks:

- allowing valuable assets and profit opportunities to fall through the cracks or, worse, be commandeered by competitors;
- losing potential positions of competitive advantage or the ability to capitalise on a feature or service that could have helped to differentiate it from the competition; and
- missing out on potential additional IP-based revenue streams.

The Spotify IA mapping framework was born out of CiP thinking applied to a knowledge company within a specific industry (ie, audio streaming). As the aphorism goes: "All models are wrong, but some are useful!" We have found this one to be very useful indeed when working with IP strategy. By sharing our approach, we hope that it can be helpfully adapted and utilised by other knowledge companies.

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TAGS

Strategy, Internet, Media & Entertainment